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TO: Fiona Powers **Location: REM/4A31/5C18** **Art Unit: 1626** **_____, 2005** **Case Serial Number: 09/927685**	**From: P. Sheppard** **Location: Remsen Building** **Phone: (571) 272-2529** **sheppard@uspto.gov**

Search Notes

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     (FILE 'REGISTRY' ENTERED AT 17:41:32 ON 09 AUG 2005)
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L12             STR L10
L14          50 SEA SSS SAM L10 OR L12
L15      101313 SEA SSS FUL L10 OR L12
L43             STR
L44         319 SEA SUB=L15 SSS FUL L43

     FILE 'HCAPLUS' ENTERED AT 18:10:37 ON 09 AUG 2005
L45         193 SEA ABB=ON  PLU=ON  L44
L48          21 SEA ABB=ON  PLU=ON  L45 AND (INK OR DYE OR INFRARED)
                D STAT QUE
                D IBIB ABS HITSTR L48 1-21


     FILE HCAPLUS

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     FILE COVERS 1907 - 9 Aug 2005  VOL 143 ISS 7
     FILE LAST UPDATED: 8 Aug 2005  (20050808/ED)

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      This file contains CAS Registry Numbers for easy and accurate
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     DICTIONARY FILE UPDATES:    8 AUG 2005  HIGHEST RN 859027-58-0

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     * effective March 20, 2005.  A new display format, IDERL, is now    *
     * available and contains the CA role and document type information. *
     *                                                          *
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Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

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FILE COVERS 1907 - 9 Aug 2005  VOL 143 ISS 7
FILE LAST UPDATED: 8 Aug 2005  (20050808/ED)

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 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

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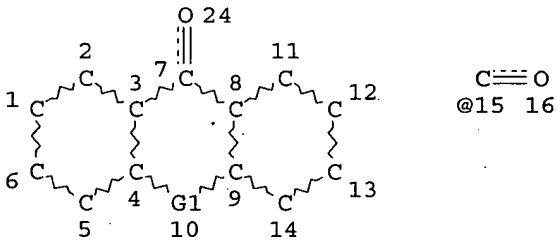


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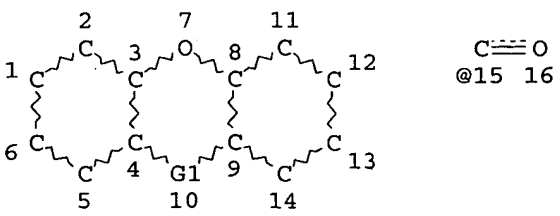

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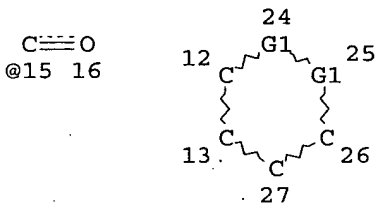

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STEREO ATTRIBUTES: NONE
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L45 193 SEA FILE=HCAPLUS ABB=ON PLU=ON L44
L48 21 SEA FILE=HCAPLUS ABB=ON PLU=ON L45 AND (INK OR DYE OR INFRARED)

=>
=>

=> d ibib abs hitstr l48 1-21

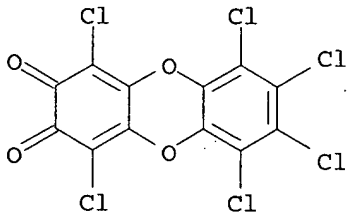
L48 ANSWER 1 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:130455 HCAPLUS
DOCUMENT NUMBER: 142:373921
TITLE: Oxidative addition reaction of o-quinones to triphenylantimony: novel triphenylantimony catecholate complexes
AUTHOR(S): Cherkasov, Vladimir K.; Grunova, Ekaterina V.; Poddel'sky, Andrey I.; Fukin, Georgy K.; Kurskii, Yury A.; Abakumova, Ludmila G.; Abakumov, Gleb A.
CORPORATE SOURCE: G. A. Razuvaev Institute of Organometallic Chemistry, Laboratory of the Chemistry of Organoelemental Compounds, Russian Academy of Sciences, Nizhny Novgorod, 603950, Russia
SOURCE: Journal of Organometallic Chemistry (2005), 690(5), 1273-1281
CODEN: JORCAI; ISSN: 0022-328X
PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 142:373921

AB New catecholate Sb(V) complexes triphenyl(3,6-di-tert-butylcatecholato)antimony(V) Ph3Sb(3,6-DBCat) (1) and triphenyl(perchloroxanthrenecatecholato)antimony(V) Ph3Sb(OXCatCl) (2) were synthesized by the oxidative addition reaction of corresponding o-quinones (3,6-di-tert-butyl-o-benzoquinone and perchloroxanthrenequinone-2,3) with triphenylantimony. Catecholates 1 and 2 can alternatively be synthesized by reacting the appropriate thallium catecholate with triphenylantimony dichloride. The oxidative addition reaction of an equimolar ratio of 4,4'-di-(3-methyl-6-tert-butyl-o-benzoquinone) and triphenylantimony yielded 4-(2-methyl-5-tert-butyl-cyclohexadien-1,5-dion-3,4-yl)-(3-methyl-6-tert-butyl-catecholato)triphenylantimony(V) Ph3Sb(Cat-Q) (3); in the case of a 1:2 molar ratio, complex 4,4'-di-[(3-methyl-6-tert-butyl-catecholato)triphenylantimony(V)] Ph3Sb(Cat-Cat)SbPh3 (4) resulted. Complexes 1-4 were characterized by **IR** and 1H NMR spectroscopy. Mol. structures of 1, 2, and 4 were determined by X-ray crystallog. to be a distorted tetragonal-pyramidal.

IT **65005-72-3**, Perchloroxanthrene-2,3-quinone
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation and structure of triphenylantimony catecholate complexes via oxidative addition of quinones to triphenylantimony)

RN 65005-72-3 HCAPLUS
CN Dibenzo[b,e][1,4]dioxin-2,3-dione, 1,4,6,7,8,9-hexachloro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L48 ANSWER 2 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1998:132825 HCAPLUS
DOCUMENT NUMBER: 128:291941
TITLE: Comparison of reaction products from the transformation of catechol catalyzed by birnessite or tyrosinase
AUTHOR(S): Naidja, A.; Huang, P. M.; Bollag, J. -M.
CORPORATE SOURCE: Dep. of Soil Science, Univ. of Saskatchewan, Saskatoon, SK, S7N 5A8, Can.
SOURCE: Soil Science Society of America Journal (1998), 62(1), 188-195
CODEN: SSSJD4; ISSN: 0361-5995
PUBLISHER: Soil Science Society of America
DOCUMENT TYPE: Journal
LANGUAGE: English

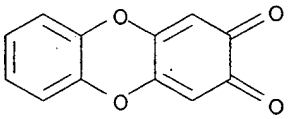
AB Both tyrosinase, a Cu-containing polyphenoloxidase, and birnessite (δ-MnO2) are able to catalyze the transformation of phenolic compds. through oxidative polymerization, a process that leads to humification, but the reaction mechanisms are not fully understood. The objective of this study

was to characterize or identify the reaction products generated from catechol (1,2-dihydroxybenzene) by birnessite or tyrosinase. Birnessite and tyrosinase catalyzed the transformation of catechol to oligomers, polycondensates, and fragments. The reaction products formed after catalysis by tyrosinase were brown colored, while those resulting from the birnessite-catechol system were green colored; the former had a higher absorbance between 200 and 620 nm than the latter. This indicated a higher degree of aromatic ring condensation in products of the tyrosinase-catechol system relative to those of the birnessite-catechol system. In addition, the products of birnessite catalysis contained polycondensates and fragments, including aliphatic components, with lower mol. wts. than did the products derived from catalysis by tyrosinase. Fourier-transform **IR** (FTIR) anal. and mass spectrometry indicated that the reaction products formed an organic coating on the birnessite granules.

IT **6859-47-8**, Diphenylenedioxide-2,3-quinone
RL: BSU (Biological study, unclassified); FMU (Formation, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)
(comparison of reaction products from transformation of catechol catalyzed by birnessite or tyrosinase)

RN 6859-47-8 HCAPLUS

CN Dibenzo[b,e][1,4]dioxin-2,3-dione (9CI) (CA INDEX NAME)



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L48 ANSWER 3 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:192280 HCAPLUS

DOCUMENT NUMBER: 126:250248

TITLE: Supercritical extraction of the anthraquinone derivatives of the madder (Rubia tinctorum)

AUTHOR(S): Krizsan, Krisztina; Hollosy, Ferenc; Szokan, Gyula; Laszlo, Miklos

CORPORATE SOURCE: ELTE Szerves Kemiai Tanszek, Budapest, 1117, Hung.

SOURCE: Olaj, Szappan, Kozmetika (1996), 45(Spec. Issue), 66-69
CODEN: OSZKAT; ISSN: 0472-8602

PUBLISHER: METE

DOCUMENT TYPE: Journal

LANGUAGE: Hungarian

AB Expts. were performed to sep. some compds. (hydroxyanthraquinones, anthraquinone glycosides) from madder (Rubia tinctorum) cell suspension cultures. The aim was to find a sensitive and reproducible procedure to determine the composition of a sample from the bioreactor. Soxhlet extraction (MeOH), supercrit. fluid extraction (CO2, MeOH) and solid-phase extraction (C18 silica) were studied. A HPLC method was developed for the characterization of the sample. High extraction yield were obtained by supercrit. fluid extraction at 5,000 psi, using CO2 + MeOH.

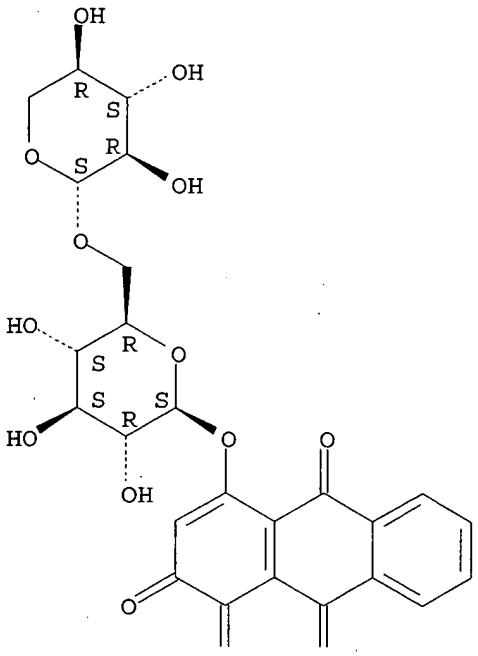
IT **50764-64-2P**, Ruberitrinic acid

RL: PUR (Purification or recovery); PREP (Preparation)
(supercrit. fluid extraction of anthraquinone derivs. from madder cell suspension culture)

RN 50764-64-2 HCAPLUS
CN 1,2,9,10-Anthracenetetrone, 4-[(6-O-β-D-xylopyranosyl-β-D-glucopyranosyl)oxy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 2-A

L48 ANSWER 4 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER:	1995:908299 HCAPLUS
DOCUMENT NUMBER:	124:248641
TITLE:	Synthesis and thermolysis reactions of molecular complexes of bis[tris(trifluoromethyl)germyl]mercury(II) with o-quinones
AUTHOR(S):	Abakumov, G. A.; Cherkasov, V. K.; Ermolaev, N. I.; Nevodhikov, V. I.; Abakumova, L. G.
CORPORATE SOURCE:	Inst. Organometallic Chem., Russian Acad. Sci., Nizhnii Novgorod, 603600, Russia
SOURCE:	Izvestiya Akademii Nauk, Seriya Khimicheskaya (1995), (8), 1568-73 CODEN: IASKEA
PUBLISHER:	Nauka
DOCUMENT TYPE:	Journal

LANGUAGE: Russian

AB The stable mol. complexes of bis[tris(trifluoromethyl)germyl]mercury(II) [(CF3)3Ge]2Hg (1) with o-quinones (3,6-di-tert-butyl-1,2-benzoquinone (2), 3,6-di-tert-butyl-4,5-dimethoxy-1,2-benzoquinone (3), and 1,4,5,7-tetra-tert-butyl-9,10-dioxa-2,3-anthracenedione (4)) was synthesized and characterized by elemental anal., **IR** and electron absorption spectroscopy methods. Depending on the starting reagents ratio the complexes were prepared R2Hg·Q (5, 7, 9) and R2Hg·Q2 (6, 8, 10), where Q = 2 (5, 6), 3 (7, 8), 4 (9, 10); R = Ge(CF3)3. According to the spectral data in the R2Hg·Q complexes mol. of o-quinone appears as the neutral ligand, whereas in the R2Hg·Q2 complexes the 2nd mol. of o-quinone is associated noncoordinatively with 1. It was established by the ESR method that the thermolysis of polycryst. samples of 6 and 10 occurs with formation of the intermediate radical pairs that results in the paramagnetic o-semiquinone complexes SQGe(CF3)3 - the typical products of the 1-electron oxidation of the organometallic compds. by o-quinones.

IT **173256-55-8P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 173256-55-8 HCAPLUS

CN Mercury, [1,4,6,8-tetrakis(1,1-dimethylethyl)dibenzo[b,e][1,4]dioxin-2,3-diolato(2-)-O2,O3]bis[tris(trifluoromethyl)germyl]-, (T-4)-, compd. with 1,4,6,8-tetrakis(1,1-dimethylethyl)dibenzo[b,e][1,4]dioxin-2,3-dione (1:1) (9CI) (CA INDEX NAME)

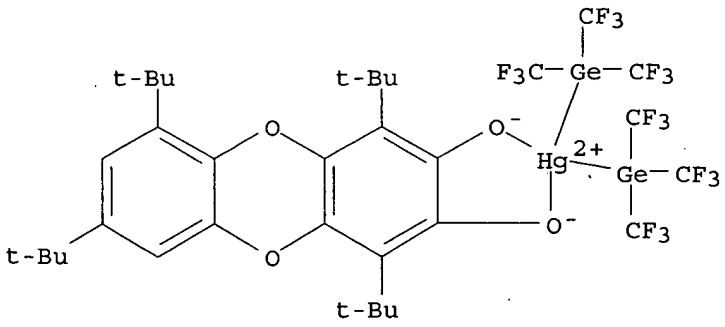
CM 1

CRN 172986-37-7
CMF C28 H38 O4

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 172986-36-6
CMF C34 H38 F18 Ge2 Hg O4
CCI CCS



IT **172986-37-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with bis(tris(trifluoromethyl)germyl)mercury)

RN 172986-37-7 HCAPLUS

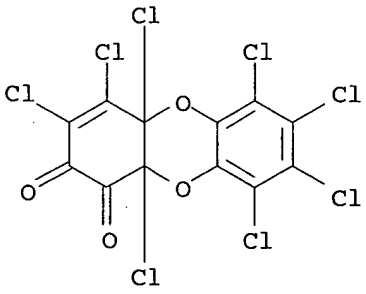
CN Dibenzo[b,e][1,4]dioxin-2,3-dione, 1,4,6,8-tetrakis(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L48 ANSWER 5 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1993:559446 HCAPLUS
DOCUMENT NUMBER: 119:159446
TITLE: Analysis of reaction kinetics by Fourier transform **infrared** spectrometry. Laser-induced photochemistry of 1,2-benzoquinones
AUTHOR(S): Alkenings, B.; Bettermann, H.; Dasting, I.; Schroers, H. J.
CORPORATE SOURCE: Inst. Phys. Chem. Elektrochem., Heinrich-Heine-Univ., Duesseldorf, W-4000, Germany
SOURCE: Vibrational Spectroscopy (1993), 5(1), 43-9
CODEN: VISPEK; ISSN: 0924-2031
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Photokinetic studies of an intermol. [4 + 2] photocycloaddn. starting from 3,4,5,6-tetrachloro-1,2-benzoquinone (o-chloranil) and of CO elimination from 3,5-di-tert-butyl-1,2-benzoquinone (DBQ) are reported. Both reactions were initiated by exciting the lowest energetic 1(π-π)* [and also the 1(n-π)* state in the case of DBQ] with argon ion laser emission lines. The kinetic analyze were mostly carried out with the use of time-dependent **IR** intensity alterations in the range of C=O stretching modes. The reactions have a non-uniform character which reveals the existence of intermediates. The intermediate of the dimerization could be established by the wavelength-dependent quantum yield related to the initial compound The laser-induced reaction can be described by a two-photon process in which the first photon excites the starting compound while the second photon interacts with the intermediate. In the case of the CO elimination, the bis-ketene intermediate could be identified by recording the asym. stretching vibration at 2173 cm-1 in the vicinity of the vibration of free carbon monoxide at 2134 cm-1.

IT **136672-44-1P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 136672-44-1 HCAPLUS
CN Dibenzo[b,e][1,4]dioxin-1,2-dione, 3,4,4a,6,7,8,9,10a-octachloro-4a,10a-dihydro- (9CI) (CA INDEX NAME)



L48 ANSWER 6 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1991:593901 HCAPLUS
DOCUMENT NUMBER: 115:193901
TITLE: Laser-induced intermolecular photocycloaddition of 3,4,5,6-tetrachloro-1,2-benzoquinone
AUTHOR(S): Bettermann, H.; Schroers, H. J.
CORPORATE SOURCE: Inst. Phys. Chem., Heinrich-Heine-Univ., Duesseldorf,

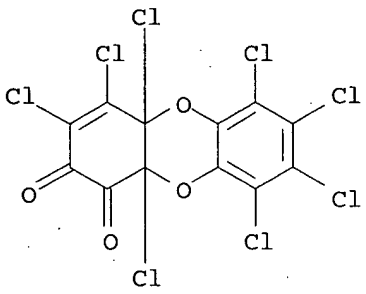
D-4000, Germany
SOURCE: Spectrochimica Acta, Part A: Molecular and Biomolecular Spectroscopy (1991), 47A(7), 893-6
CODEN: SAMCAS; ISSN: 0584-8539
DOCUMENT TYPE: Journal
LANGUAGE: English

AB An intermol. [4+2] photocycloaddn. was initiated by excitation of the lowest energetic 1(π-π*) state of o-chloranil (3,4,5,6-tetrachloro-1,2-benzoquinone) using emission lines of an argon ion laser. The course of reaction was investigated by measuring the **IR** spectra of the reaction mixture The reaction has non-uniform character and shows a wavelength-dependence of the quantum yield. For these reasons, this laser-induced reaction is described by a two-photon process in which the first photon excites the initial compound and the second photon interacts with an intermediate generating the final compound

IT **136672-44-1P**
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in laser-induced two-photon intermol. photocycloaddn. of tetrachlorobenzoquinone)

RN 136672-44-1 HCAPLUS

CN Dibenzo[b,e][1,4]dioxin-1,2-dione, 3,4,4a,6,7,8,9,10a-octachloro-4a,10a-dihydro- (9CI) (CA INDEX NAME)



L48 ANSWER 7 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1990:641439 HCAPLUS
DOCUMENT NUMBER: 113:241439
TITLE: Electrophotographic photoreceptors containing azo **dyes**
INVENTOR(S): Kanamaru, Tetsuo
PATENT ASSIGNEE(S): Canon K. K., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02054275	A2	19900223	JP 1988-204736	19880819
PRIORITY APPLN. INFO.:			JP 1988-204736	19880819

OTHER SOURCE(S): MARPAT 113:241439

AB Electrophotog. photoreceptors, characterized by high sensitivity and stability of elec. potential during repeated usage, consist of 2 photosensitive layers on an elec. conductive support, i.e. a charge-transporting layer and a charge-generating layer containing an azo

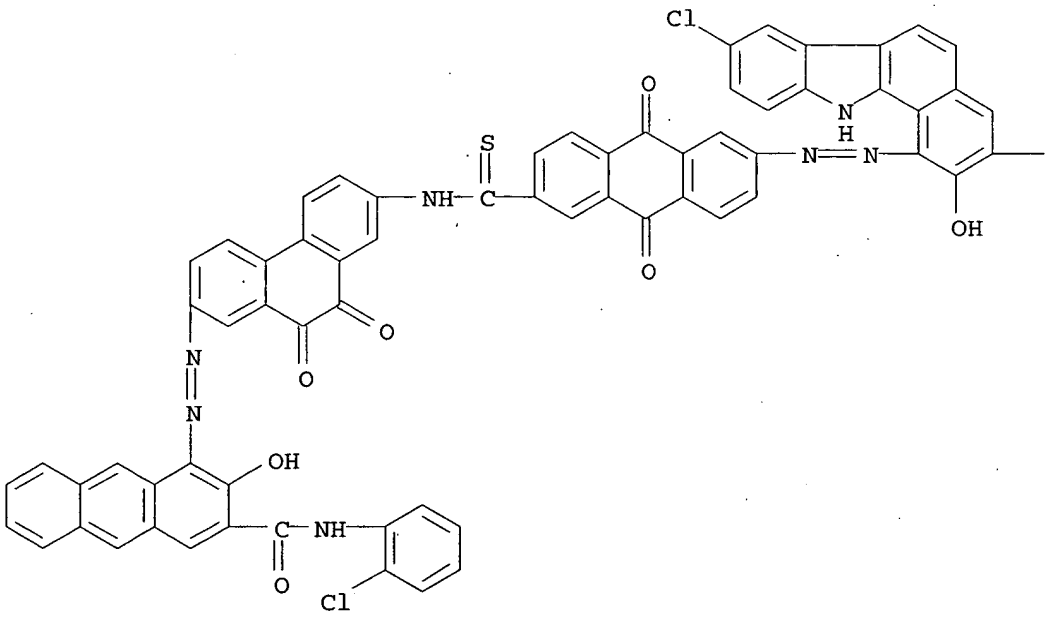
dye Cp1N:NAr1[C(:Z)NH]mW[C(:Z)NH]nAr2N:NCp1 [I; W = single bond, divalent aromatic hydrocarbon, or heterocycle; Ar1,Ar2 = (un)substituted divalent cyclic ketone or cyclic quinone; Cp1,Cp2 = coupler containing phenolic OH; Z = O, S; m,n = 0 or 1; and m = n ≠ 0]. Photoreceptors containing I in a charge-generating layer showed surface potential of -675 to -720 V and E1/2 (amount of light exposure necessary to attenuate 1/2 the elec. potential reached after 1 s attenuation in the dark) of 2.5-3.3 lx-s.

IT **129781-92-6P**
RL: PREP (Preparation)
(preparation of, for electrophotog. photoconductor)

RN 129781-92-6 HCAPLUS

CN 11H-Benzo[a]carbazole-3-carboxamide, 8-chloro-N-(2-chlorophenyl)-1-[[6-[[[7-[[3-[[(2-chlorophenyl)amino]carbonyl]-2-hydroxy-1-anthracenyl]azo]-9,10-dihydro-9,10-dioxo-2-phenanthrenyl]amino]thioxomethyl]-9,10-dihydro-9,10-dioxo-2-anthracenyl]azo]-2-hydroxy- (9CI) (CA INDEX NAME)

PAGE 1-A



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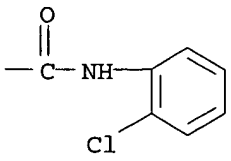


L48 ANSWER 8 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1987:51699 HCAPLUS
DOCUMENT NUMBER: 106:51699
TITLE: Pigments for polarizing films
INVENTOR(S): Nakamura, Katsuji; Fujio, Junichi; Hosonuma, Makoto; Nakatsuka, Masakatsu; Nishizawa, Isao
PATENT ASSIGNEE(S): Mitsui Toatsu Chemicals, Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 61087757	A2	19860506	JP 1984-210067	19841005
JP 04030986	B4	19920525		
DE 3590479	T	19861030	DE 1985-3590479	19850612
DE 3590479	C2	19921224		
EP 198082	B1	19920715	EP 1985-903035	19850612
R: FR, IT				
US 4824882	A	19890425	US 1986-866492	19860520
US 5059356	A	19911022	US 1990-579246	19900906
US 5286418	A	19940215	US 1991-725641	19910703
US 5354513	A	19941011	US 1993-135420	19931013

PRIORITY APPLN. INFO.:

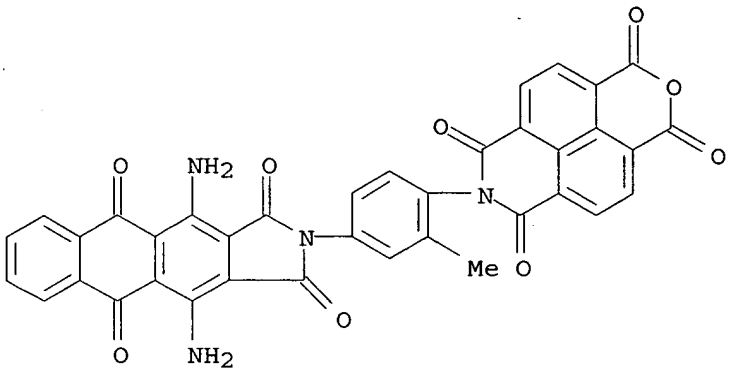
JP 1984-210067	A	19841005
WO 1985-JP328	W	19850612
US 1986-866492	A3	19860520
US 1989-308031	B1	19890227
US 1990-579246	A3	19900906
US 1991-725641	A3	19910703

GI For diagram(s), see printed CA Issue.

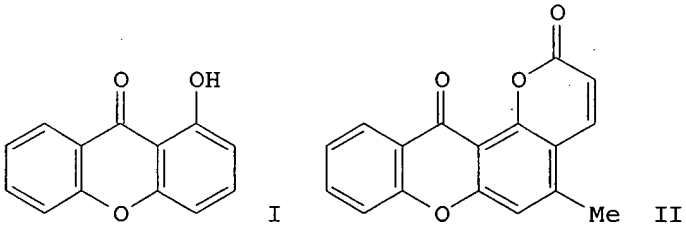
AB Polarizer film pigments I [n = 1, 2; R-R5 = H, halo, OH, NH2, C1-3 alkylamino (≥1 of R, R3-R5 is OH or amino); R6, R7 = H, halo, Me; R8 = CO2H, CO2R9, CONH2, CONHR9, O2CR9, NHCOR9, N:NR9, Q; A = substituted benzene, naphthalene, anthraquinone nucleus; R9 = (un)substituted Ph; X = O, S, NH] **dye** polymer films for use as polarizers. Thus, 1,4-diaminoanthraquinone-2,3-dicarboxylic anhydride was refluxed with BzNHC6H4NH2-4 in DMF for 5 h, forming I (n = 1, R = R1 = R2 = R3 = R6 = R7 = H, R4 = R5 = NH2, R8 = NHBz, X = O), λmax 680 nm (PhNO2). Poly(ethylene terephthalate) pellets were dyed with 0.2% I, made into a film, drawn, and set to form a 70-μ-thick polarizer film with λmax 685 nm and a polarization degree of 88% (685 nm), which showed no change in color or decline in polarization degree after 500 h exposure to 90% relative humidity at 80°.

IT **106307-97-5P**
RL: PREP (Preparation)
(manufacture of, as polarizing **dye** for plastic films)

RN 106307-97-5 HCAPLUS
CN 1H-2-Benzopyrano[6,5,4-def]isoquinoline-1,3,6,8(7H)-tetrone, 7-[4-(4,11-diamino-1,3,5,10-tetrahydro-1,3,5,10-tetraoxo-2H-naphth[2,3-f]isoindol-2-yl)-2-methylphenyl]- (9CI) (CA INDEX NAME)



L48 ANSWER 9 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1983:575540 HCAPLUS
DOCUMENT NUMBER: 99:175540
TITLE: Studies in synthesis of xanthone derivatives: Part III. A new one-step synthesis of xanthones
AUTHOR(S): Patolia, Ravji J.; Trivedi, K. N.
CORPORATE SOURCE: Fac. Sci., M. S. Univ. Baroda, Baroda, 390 002, India
SOURCE: Indian Journal of Chemistry, Section B: Organic Chemistry Including Medicinal Chemistry (1983), 22B(5), 444-7
CODEN: IJSBDB; ISSN: 0376-4699
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 99:175540
GI

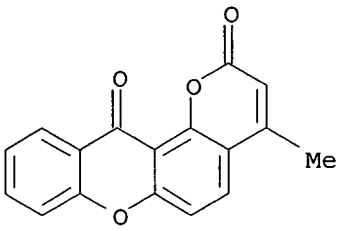


AB Et salicylate condenses with different phenols in refluxing Ph2O to give various xanthones, e.g., I, in good yields. With resorcinol, hydroquinone, catechol, and 3,4-xylenol, the corresponding Ph salicylate derivs. are also obtained. Condensation with hydroxycoumarins gives pyranoxanthones, e.g., II, which can not be prepared by the Pechmann condensation of hydroxyxanthones. The structures of the intermediates and final products are established by spectral data (**IR**, H and 13C NMR).

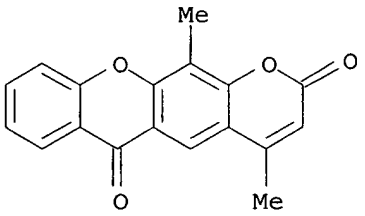
IT **87504-05-0P 87504-06-1P 87504-07-2P**
87504-08-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 87504-05-0 HCAPLUS

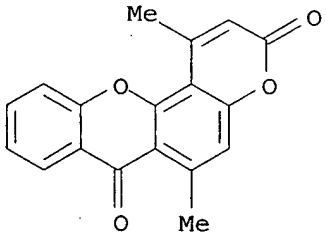
CN 2H,12H-Pyrano[2,3-a]xanthene-2,12-dione, 4-methyl- (9CI) (CA INDEX NAME)



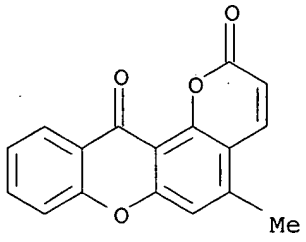
RN 87504-06-1 HCAPLUS
CN 2H,6H-Pyrano[3,2-b]xanthene-2,6-dione, 4,12-dimethyl- (9CI) (CA INDEX NAME)



RN 87504-07-2 HCAPLUS
CN 3H,7H-Pyrano[2,3-c]xanthene-3,7-dione, 1,6-dimethyl- (9CI) (CA INDEX NAME)

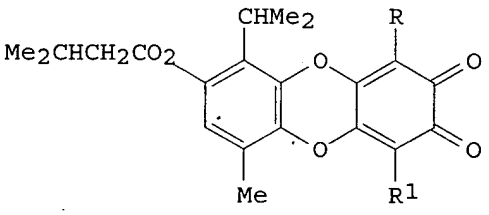


RN 87504-08-3 HCAPLUS
CN 2H,12H-Pyrano[2,3-a]xanthene-2,12-dione, 5-methyl- (9CI) (CA INDEX NAME)



L48 ANSWER 10 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1980:160548 HCAPLUS

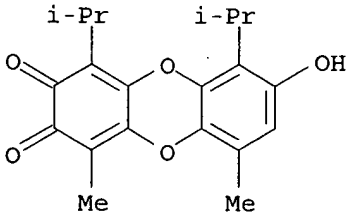
DOCUMENT NUMBER: 92:160548
TITLE: Leaf-gland pigments from Labiatae: ecklonoquinones A and B, two novel dibenzo-p-dioxine-o-quinones from Plectranthus ecklonii Benth
AUTHOR(S): Uchida, Masaaki; Ruedi, Peter; Eugster, Conrad Hans
CORPORATE SOURCE: Org.-Chem. Inst., Univ. Zurich-Irchel, Zurich, CH-8057, Switz.
SOURCE: Helvetica Chimica Acta (1980), 63(1), 225-31
CODEN: HCACAV; ISSN: 0018-019X
DOCUMENT TYPE: Journal
LANGUAGE: German
GI



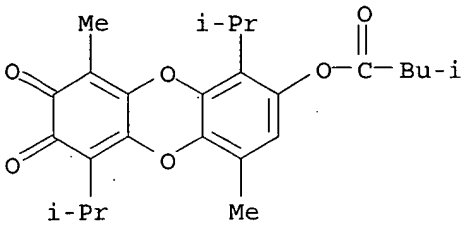
I, R=$CHMe_2$, R^1=Me
II, R=Me, R^1=$CHMe_2$

AB The novel isomeric dibenzo-p-dioxine o-quinones ecklonoquinone A (I) and ecklonoquinone B(II) were isolated from leaves of P. ecklonii, in addition to 2(S)-5,4'-dihydroxy-6,7-dimethoxyflavanone, cirsimaritin, and parvifloron F. UV, **IR**, mass, and extensive 1H- and 13C-NMR data are given for I and II.

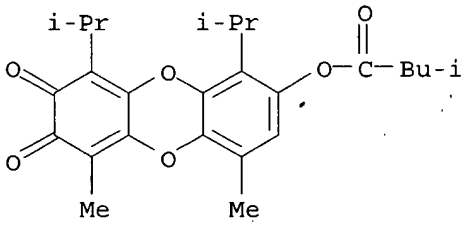
IT **73328-58-2P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 73328-58-2 HCAPLUS
CN Dibenzo[b,e][1,4]dioxin-2,3-dione, 7-hydroxy-1,9-dimethyl-4,6-bis(1-methylethyl)- (9CI) (CA INDEX NAME)



IT **73328-28-6 73328-29-7**
RL: BIOL (Biological study)
(Plectranthus dibenzodioxine orthoquinone, structure of)
RN 73328-28-6 HCAPLUS
CN Butanoic acid, 3-methyl-, 7,8-dihydro-4,9-dimethyl-1,6-bis(1-methylethyl)-7,8-dioxodibenzo[b,e][1,4]dioxin-2-yl ester (9CI) (CA INDEX NAME)



RN 73328-29-7 HCAPLUS
CN Butanoic acid, 3-methyl-, 7,8-dihydro-4,6-dimethyl-1,9-bis(1-methylethyl)-7,8-dioxodibenzo[b,e][1,4]dioxin-2-yl ester (9CI) (CA INDEX NAME)

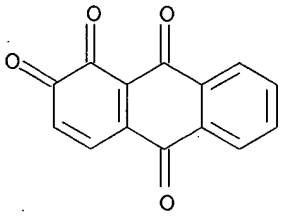


L48 ANSWER 11 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1967:402933 HCAPLUS
DOCUMENT NUMBER: 67:2933
TITLE: Addition of arenesulfinic acids to 1,2,9,10-anthradiquinones
AUTHOR(S): Gorelik, M. V.
CORPORATE SOURCE: Res. Inst. Org. Intermeds. Dyes, Moscow, USSR
SOURCE: Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva im. D. I. Mendeleeva (1966), 11(5), 586-7
CODEN: ZVKOA6; ISSN: 0373-0247
DOCUMENT TYPE: Journal
LANGUAGE: Russian

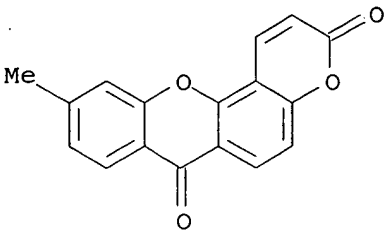
AB 1,2,9,10-Anthradiquinone and PhSO2H in EtOH or AcOH gave 80% mixed 4-and 3-phenylsulfonyl-1,2-dihydroxyanthraquinones, m. 273.5-4.5°, and m. 246-7°, resp. in nearly 1:1 ratio. Only the latter isomer formed from such addition of PhSO2Na in EtOH or dioxane. The sulfones were separated as
Me ethers formed with Me2SO4-K2CO3 in Me2CO, when the 4-isomer yields the dimethoxy derivative in an interval that converts the 3-isomer (I) only to the 2-methoxy derivative, m. 216-17°; 1,2-dimethoxy derivative m. 171-1.5°. 3-Bromoalizarin and PhSO2Na in (CH2OH)2 gave I. 3-Bromo-1,2,9,10-anthradiquinone and PhSO2H gave 48% 3-phenylsulfonylalizarin O1-benzenesulfonate, m. 196-7°; its 2-methoxy analog m. 231-2°. **Ir** spectra were reported.

IT **5539-67-3D**, 1,2,9,10-Anthracenetetrone, derivs.
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactions with arenesulfinic acids)

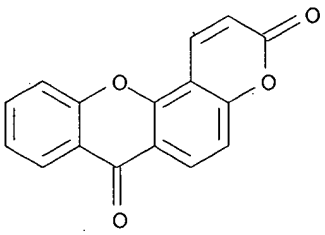
RN 5539-67-3 HCAPLUS
CN 1,2,9,10-Anthracenetetrone (7CI, 8CI, 9CI) (CA INDEX NAME)



L48 ANSWER 12 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1967:55337 HCAPLUS
DOCUMENT NUMBER: 66:55337
TITLE: Furano compounds. VIII. Synthesis and **infrared** spectra of some furano- and pyranoxanthones
AUTHOR(S): Puranik, Gurubasav S.; Rajagopal, Srinivasa
CORPORATE SOURCE: Univ. Karnatak, Dharwar, India
SOURCE: Indian Journal of Chemistry (1966), 4(10), 442-4
CODEN: IJOCAP; ISSN: 0019-5103
DOCUMENT TYPE: Journal
LANGUAGE: English
GI For diagram(s), see printed CA Issue.
AB cf. CA 65, 12185e. 3-Hydroxy-6-methylxanthone (4.52 g.) (CA 60, 15847e), 18 g. hexamine, and 565 ml. HOAc was heated 7 hrs. on a steam bath. The reaction mixture was cooled, and concentrated in vacuo to 200 ml., 9 ml. 1:1 HCl
added, and the mixture refluxed 10 min., poured into H2O, and left overnight to yield 1.62 g. 4-formyl-3-hydroxy-6-methylxanthone (I), m. 218° (EtOH) (scarlet-red ferric reaction) (2,4-dinitrophenylhydrazone, m. >300° (HOAc)). I on heating 2 hrs. with Ac2O and few drops C5H5N yielded the 3-acetoxy compound, m. 150° (EtOH). I (0.42 g.), 0.52 g. BrCH(CO2Et)2, and 2 g. anhydrous K2CO3 was refluxed 8 hrs. to yield 0.22 g. 5'-carbethoxyfurano[3',2':4,3]-6-methylxanthone (IIa) (R = Me, R1 = H, R2 = CO2Et) (II), m. 199° (EtOH). II (0.15 g.) in 20 ml. Me2CO was treated with 10 ml. 5% Na2CO3, the mixture refluxed 3 hrs., and acidified with 10 ml. dilute HCl, and the Me2CO distilled to yield 0.09 g. 5'-carboxyfurano[3',2':4,3]-6-methylxanthone (III), m. 315° (HOAc). Decarboxylation of 0.06 g. III by heating 20 min. at 190-200° with 0.06 g. Cu powder in 2 ml. quinoline in N atmospheric yielded 0.03 g. furano[3',2':4,3]-6-methylxanthone (IV), m.207° (EtOH). A mixture of 0.12 g. I, 0.05 g. freshly fused NaOAc and 2 ml. Ac2O was heated 2 hrs. at 120° and then stirred 5 hrs. at 180° to yield 6'-pyrono[3',2':4,3]-6-methylxanthone (V), m. 257° (HOAc). The **ir** spectra of IV, V, and the following xanthones were recorded and interpreted: 5'-methylfurano[3',-2':4,3]xanthone, furnao[3',2':4,3]xanthone, 6'-pyrono]3',2':4,3]xanthone, 4'-methylfurano[3',2':4,3]xanthone, 5',6'-dimethylfurano[3',2':4,3]xanthones, and 4',6'-dimethylfurano[3',2':4,3]xanthones.
IT **14727-16-3P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 14727-16-3 HCAPLUS
CN 3H,7H-Pyrano[2,3-c]xanthene-3,7-dione, 10-methyl- (8CI) (CA INDEX NAME)



IT **6048-45-9**
RL: PRP (Properties)
(spectrum (ir) of)
RN 6048-45-9 HCAPLUS
CN 3H,7H-Pyrano[2,3-c]xanthene-3,7-dione (8CI, 9CI) (CA INDEX NAME)



L48 ANSWER 13 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1965:481165 HCAPLUS
DOCUMENT NUMBER: 63:81165
ORIGINAL REFERENCE NO.: 63:15024g-h,15025a-b
TITLE: 2,5-Bis(2-anthraquinonyl)-1,3,4-oxadiazole **dyes**
PATENT ASSIGNEE(S): CIBA Ltd.
SOURCE: 25 pp.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
BE 650257		19650108	BE	
FR 1404010			FR	
GB 1006157			GB	
PRIORITY APPLN. INFO.:			CH	19630709

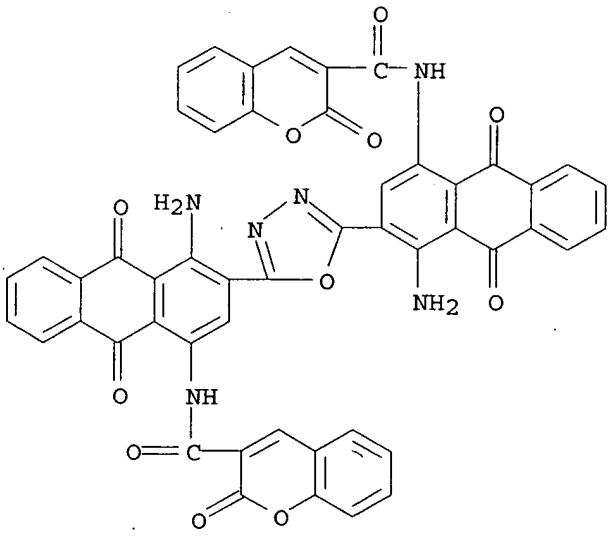
GI For diagram(s), see printed CA Issue.
AB Compds. of the general formulas I and II give fast blue dyeings on cellulose fibers (III). Thus, a mixture of 2.8 parts thiophene-2-carboxylic acid, 150 parts PhNO2, and 7.1 parts SOCl2 is agitated 1 hr. at 100-10°, the excess SOCl2 and PhNO2 are distilled, 5.4 parts 2,5-bis(1,4-diamino-2-anthraquinonyl)-1,3,4-oxadiazole is added at 100° and the mixture is heated 2 hrs. at 140-5°, heated 3 hrs. at 160-5°, and filtered at 120° to give I (Ar = 2-thienyl), blue on III. Similarly prepared are the following I (Ar and color on III given): 2-furyl, reddish blue; 2-quinolyl, reddish blue; 2-pyridyl, reddish blue; 1-phenyl1,2,3-triazol-4-yl, reddish blue; 5-phenyl-2-thienyl, greenish blue; 2-phenyl-5-thiazolyl, blue;

2-phenyl-4-quinolyl, blue; 3-coumarinyl, greenish blue; 2-benzofuranyl, blue; 2,4,6trichloro-3-pyridyl, violet; 5-(2-furyl)-2-thienyl, greenish blue; 5-(5-phenyl-1,3,4-oxadiazol-2-yl)-2-thienyl, greenish blue; A, blue. Also prepared are the following II (Ar, Ar', and color on III given): Ph, 2-furyl, blue; Ph, 5-carbomethoxy-2-thienyl, greenish blue; 2-furyl, 5-carboxy-2-thienyl (Na salt), greenish blue.

IT **4375-75-1**, Coumarin, 3,3'-[1,3,4-oxadiazole-2,5-diylbis[(4-amino-3,1-anthraquinonylene)iminocarbonyl]]di-
(preparation of)

RN 4375-75-1 HCAPLUS

CN Coumarin, 3,3'-[1,3,4-oxadiazole-2,5-diylbis[(4-amino-3,1-anthraquinonylene)iminocarbonyl]]di- (7CI, 8CI) (CA INDEX NAME)



L48 ANSWER 14 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1961:76047 HCAPLUS

DOCUMENT NUMBER: 55:76047

ORIGINAL REFERENCE NO.: 55:14408b-d

TITLE: Anthraquinone and anthrone series. XXV. Constitution of nitrated dibenzanthrone

AUTHOR(S): Malhotra, S. S.; Unni, M. K.; Venkataraman, K.

CORPORATE SOURCE: Natl. Chem. Lab., Poona

SOURCE: Journal of Scientific & Industrial Research (1960), 19B, 382-90
CODEN: JSIRAC; ISSN: 0022-4456

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

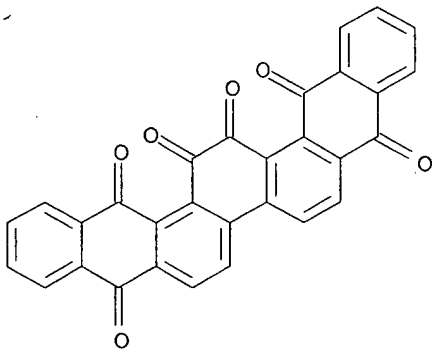
AB cf. CA 55, 8864i. The essential constituent of com. nitrated dibenzanthrone was shown to be 16-nitrodibenzanthrone (I), isolated from Caledon Black BB and Cibanone Black BB by chromatography on alumina at 110°, also prepared by nitration of dibenzanthrone (II). I with H2CrO4 and H2SO4 gave 70% 1,2,7,8-diphthaloylphenanthraquinone (III), brown needles (C6H3Cl3), but further oxidation yielded 65% 2,2'-dianthraquinonyl-1,1'-dicarboxylic acid, m. 360° (decomposition). Decarboxylation with Cu in boiling quinoline gave 2,2'-bianthraquinonyl, yellow needles, m. 395-7°. This showed the nitro group was at position 15 or 16. The 16 position was confirmed by reduction of the isolated nitrodibenzanthrone to 16-aminodibenzanthrone (IV), also prepared from

benzanthrone and 2-aminobenzanthrone (V). 16,17-Diaminodibenzanthrone (VI) was also prepared by bimol. fusion of V. III was further obtained by oxidation of 16,17-dimeth oxydibenzanthrone (VII). **Infrared** data were given for I, II, IV, VI, VII, and 16-benzamidodibenzanthrone.

IT **121655-82-1**, Dibenzo[b,n]picene-5,10,15,16,17,18-hexone
(preparation of)

RN 121655-82-1 HCAPLUS

CN Dibenzo[b,n]picene-5,10,15,16,17,18-hexone (6CI) (CA INDEX NAME)



L48 ANSWER 15 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1958:21014 HCAPLUS
DOCUMENT NUMBER: 52:21014
ORIGINAL REFERENCE NO.: 52:3754b-e
TITLE: Synthesis of 5-benzoylacenaphthene, 5-(o-carboxybenzoyl)acenaphthene and its derivatives
AUTHOR(S): Akiyoshi, Saburo; Tsuge, Otohiko
CORPORATE SOURCE: Kyushu Univ., Fukuoka
SOURCE: Kogyo Kagaku Zasshi (1956), 59, 455-8
CODEN: KGKZA7; ISSN: 0368-5462
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

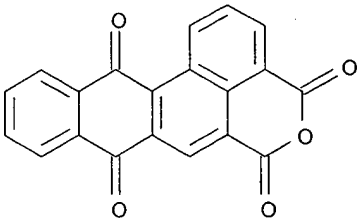
AB The mixed m.p. curve for 5-benzoylacenaphthene (I), obtained by Friedel-Crafts reaction from acenaphthene (II) and benzoyl chloride in PhNO2, and II is given, the azeotropic point being 65° (41.95% II). The 5,6-phthaloyl derivative of II (III) was obtained in 61.8% yield from the 5-(o-carboxybenzoyl) derivative (IV) by melting with AlCl3. 4,5-Phthaloylnaphthalic acid (V), m. 345-7°, was obtained from a reaction of III with Na2Cr2O7 after boiling for 3 hrs. in glacial AcOH. The anhydride of V (VI), needles, m. 356-7°, was obtained from V by boiling with concentrated HNO3. Oxidation of IV with Na2Cr2O7 in glacial AcOH gave 4-(o-carboxybenzoyl)naphthalic acid, m. 230-2°, which further gave its acid anhydride (VII), crystals, m. 240-240.5° (AcOH). Heating VII in concentrated H2SO4 at 190-5° for 2.5 hrs. gave 3,4-phthaloylnaphthalic acid and its acid anhydride (VIII), m. 315°. VI and VIII were treated with various amines to give the corresponding amides. The m.ps. and some colors (vat **dye**) of newly found amides are given in the following. Derivs. of VI: PhNH2 352-3°; p-phenetidine 284-5.5°; p-O2NC6H4NH2 346-7°; o-O2NC6H4NH2 357-8.5°; α-aminoanthraquinone 378-9°, brown; β-aminoanthraquinone 360-2°, orange-brown; and of VIII:PhNH2 319-20°; α-aminoanthraquinone 331-3°, dark brown; β-aminoanthraquinone 315-18°, dark

brown.

IT **22245-71-2**, Benz[a]anthracene-4,5-dicarboxylic anhydride, 7,12-dihydro-7,12-dioxo-
(preparation of)

RN 22245-71-2 HCAPLUS

CN 4H,6H-Anthra[3,2,1-de][2]benzopyran-4,6,8,13-tetrone (9CI) (CA INDEX NAME)



L48 ANSWER 16 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1953:60331 HCAPLUS

DOCUMENT NUMBER: 47:60331

ORIGINAL REFERENCE NO.: 47:10231b-e

TITLE: Studies in vat **dyes**. II. Phenanthraquinonyl(anthraquinonyl)amines and their dyeing properties

AUTHOR(S): Desai, R. D.; Kumta, N. S.

CORPORATE SOURCE: Dept. of Chem. Technol., Bombay

SOURCE: Journal of Scientific & Industrial Research (1952), 11B, 284-6
CODEN: JSIRAC; ISSN: 0022-4456

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

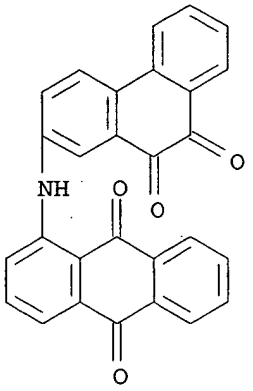
AB Vat **dyes** are prepared by condensing 2-bromophenanthraquinone (VI) and 3,6-dibromophenanthraquinone (VII) (Schmidt and Eitel, C.A. 26, 4337) with 1-amino- (VIII) or 2-amino- (IX) or 1-amino-2-methyl- (X) or 1,5-diaminoanthraquinone (XI) by the Ullman method. 1-(2-Phenanthraquinonylamino)anthraquinone, m. >300° (red violet needles from EtOH-PhNO2), is prepared in 65% yield by refluxing VI, m. 233-4° (cf. Schmidt and Junghaus, Ber. 37, 3578(1904)), VIII, Cu2Cl2, and NaOAc in PhNO2. Similarly prepared (yield in parentheses) are 2-(2-phenanthraquinonylamino)anthraquinone (65%), m. >300° (brown plates from EtOH-pyridine), from VI and IX; 1-(2-phenanthraquinonylamino)-2-methylanthraquinone (60%), m. >300° (violet plates from PhNO2), from VI and X; 1,5-bis(2-phenanthraquinonylamino)anthraquinone (65%), m. >300° (violet needles from PhNO2), from VI and XI; 3,6-bis(1-anthraquinonylamino)phenanthraquinone (65%), m. >340° (red brown needles from PhNO2), from VII and VIII; 3,6-bis(2-anthraquinonylamino)phenanthraquinone (65%), m. >340° (brown plates from EtOH-PhNO2), from VII and IX; 3,6-bis(2-methyl-1-anthraquinonylamino)phenanthraquinone (60%), m. >340° (violet plates from EtOH-PhNO2), from VII and X; and 3,6-bis(5-amino-1-anthraquinonylamino)phenanthraquinone (65%), m. >350° (red violet plates from PhNO2), from VII and XI. The **dyes** are soluble in concentrate H2SO4 and give brown vats with alkaline Na2S2O4. All dyeings show excellent fastness to light and soaping, and moderate fastness to bleaching.

IT **75534-82-6**, Phenanthrenequinone, 2-[1-anthraquinonylamino]-
835917-61-8, Phenanthrenequinone, 3,6-bis[1-anthraquinonylamino]-
855951-06-3, Anthraquinone, 1,1'-(9,10-dihydro-9,10-dioxo-3,6-

phenanthrylenediimino)bis[5-amino- **855951-13-2**, Anthraquinone, 1,1'-(9,10-dihydro-9,10-dioxo-3,6-phenanthrylenediimino)bis[2-methyl- (preparation of)

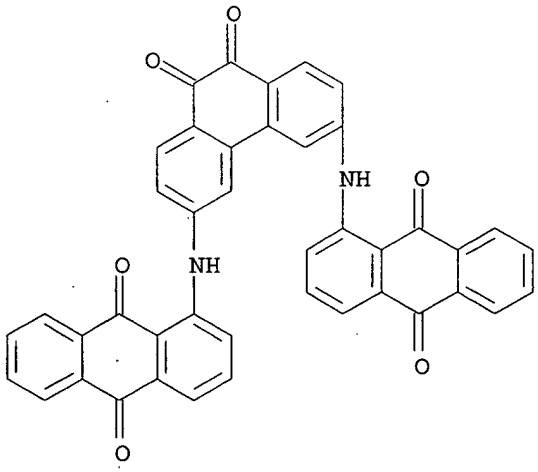
RN 75534-82-6 HCAPLUS

CN 9,10-Anthracenedione, 1-[(9,10-dihydro-9,10-dioxo-2-phenanthrenyl)amino]- (9CI) (CA INDEX NAME)



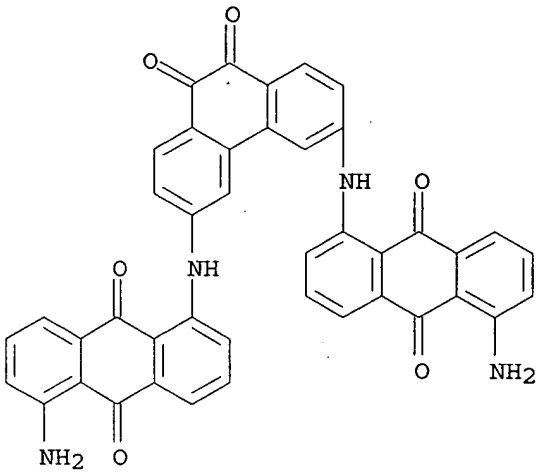
RN 835917-61-8 HCAPLUS

CN Phenanthrenequinone, 3,6-bis[1-anthraquinonylamino]- (5CI) (CA INDEX NAME)

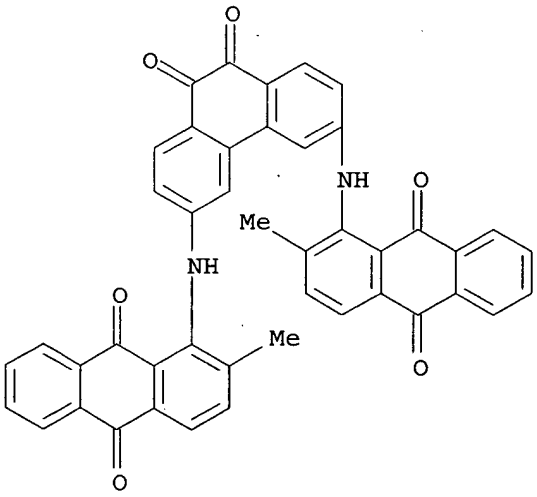


RN 855951-06-3 HCAPLUS

CN Anthraquinone, 1,1'-(9,10-dihydro-9,10-dioxo-3,6-phenanthrylenediimino)bis[5-amino- (5CI) (CA INDEX NAME)



RN 855951-13-2 HCAPLUS
CN Anthraquinone, 1,1'-(9,10-dihydro-9,10-dioxo-3,6-phenanthrylenediimino)bis[2-methyl- (5CI) (CA INDEX NAME)



L48 ANSWER 17 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1953:10779 HCAPLUS
DOCUMENT NUMBER: 47:10779
ORIGINAL REFERENCE NO.: 47:1933a-i,1934a
TITLE: New intermediates and **dyes.** III. Condensation of 4-tert-butylphthalic anhydride with acenaphthene. 6-tert-Butylquinizarin and derived cellulose acetate **dyes**
AUTHOR(S): Larner, Brian W.; Peters, Arnold T.
CORPORATE SOURCE: Univ. Leeds, UK
SOURCE: Journal of the Chemical Society, Abstracts (1952) 1368-73
CODEN: JCSAAZ; ISSN: 0590-9791
DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

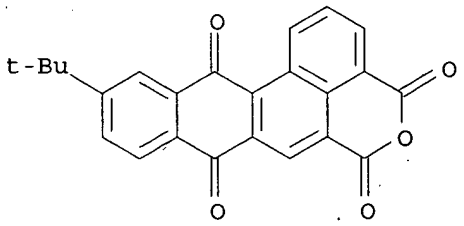
AB cf. C.A. 46, 9540c. PhOH (37 g.), 20 g. 4-tert-BuC6H3(CO)2O (I), and 54 g. ZnCl2, heated 2 h. at 120°, raised to 160° in 1 h., and heated 3 h. at 160°, give 18 g. tert-butylphenolphthalein, m. 300-13°, deep red color in concentrated H2SO4. I (5.1 g.), 5.5 g. m-C6H4(OH)2, and 2 g. ZnCl2, heated to 200° (1 h.) and 1 h. at 200°, give 82% tert-butylfluorescein (II), yellow, m. 332-40°. Br (8 g.) was added to a suspension of 4 g. tert-butyl-fluorescein in 20 cc. absolute EtOH, heat developed, and the whole was kept for an hr. There were obtained 1.2 g. orange prisms of tert-butyleosin, m. 314° (decomposition), and 2.7 g. of a solvate (2 mols. EtOH), orange red, m. 248.5-9°. I (10.2 g.) and 7.7 g. acenaphthene (III) in 250 cc. C6H6, treated with 13.3 g. anhydrous AlCl3 (temperature below 30°), kept overnight at room temperature, decomposed with dilute HCl, distilled with steam, the product extracted with boiling 10% aqueous Na2CO3, the alkaline extract acidified, the solid crystallized from AcOH [m. 260° (decomposition), 80%], and then precipitated from cold MeOH with HCl, give 5-(5-tert-butyl-2-carboxybenzoyl)acenaphthene (C.A. numbering) (IV), m. 271-3°; Me ester, pale yellow, m. 139-40°; Et ester, yellow, m. 123-4°. IV (4 g.), 0.4 g. Cu bronze, and 10 cc. quinoline, heated 30 min. at 215-20°, give 5-(m-tert-butylbenzoyl)acenaphthene (V), m. 110-11°; 3.8 g. III, 5 g. m-tert-BuC6H4COCl, and 5 g. AlCl3, 5 h. at room temperature and 30 min. at the b.p., give 41% V. III (7.7 g.) and 10 g. p-tert-BuC6H4COCl in 50 cc. C6H6, treated with 10 g. AlCl3, kept 3 h. at room temperature, and refluxed 15 min. give 65% of the p-isomer of V, b6 280° (oxime, m. 175-7°). III (2 g.) and 6 g. (COCl)2, heated at 140°, give 5-acenaphthoic acid, m. 217-18°; with m-tert-BuC6H4MgBr this yields a product, b0.7 185°, m. 170-2°. V with fuming H2SO4 gives only sulfonated products; 7.2 g. V, 24 g. AlCl3, and 6 g. NaCl, heated 30 min. at 130° and 30 min. at 140°, give 18% 5,6-(4-tert-butylphthaloyl)acenaphthene (VI), yellow, m. 188-9°. VI (2 g.) in 60 cc. boiling AcOH, treated with 8 g. Na2Cr2O7, refluxed 4 h., and extracted with boiling 10% aqueous Na2CO3, gives 27% 4,5-(4-tert-butylphthaloyl)-1,8-naphthalic anhydride, pale yellow, m. 310°. V (3.6 g.) and 10 g. Na2Cr2O7 in 75 cc. AcOH, refluxed 6 h., give 72% 4-(5-tert-butyl-2-carboxybenzoyl)-1,8-naphthalic anhydride (VII), yellow, m. 238-40°; heating VII with o-C6H4(NH2)2 in boiling AcOH gives the benziminazole derivative, C30H22O4N2, orange, m. 300-2°. VII (2 g.), 2 g. boric anhydride, and 6 cc. fuming H2SO4, heated 4 h. at 140-60° and extracted with warm 10% aqueous Na2CO3, give 16% 7-tert-butyl-1,2-benzanthraquinone-3,4'-dicarboxylic anhydride, yellowish green, m. 286°. I (12.8 g.) and 6.4 g. p-ClC6H4OH in 30 cc. CCl4, treated with 13.3 g. AlCl3 and heated 3 h. on the steam bath, give 6(or 7)-tert-butyl-1-chloro-4-hydroxyanthraquinone (VIII), greenish yellow needles, m. 150-2°. H3BO3 (6 g.) in 98% H2SO4 at 50°, treated alternatively in portions (1 h.) with 15.3 g. I and 6.4 g. p-ClC6H4OH, the temperature raised to 160° in 2 h., heated 3 h. at 160°, raised to 210° in 1 h., and heated 2 h. at 210°, cooled to 100°, treated with 20 cc. 98% H2SO4 and 33 cc. H2O, poured onto ice, the precipitate boiled 10 min. with 300 cc. H2O, the product extracted with boiling 2% aqueous NaOH, acidified, and crystallized from PhCl, give 2.2 g. 6-tert-butylquinizarin (IX), bright red, m. 169-71°; 0.8 g. VIII, added to 6 g. H3BO3 in 8 cc. 98% H2SO4 and heated 6 h. at 190°, gives 80% IX. I (12.8 g.) and 5.5 g. p-C6H4(OH)2 with AlCl3 in CCl4 give 2.1 g. IX; in the 2nd method, the use of p-C6H4-(OH)2 gives 1.5 g. IX. I (26 g.) and 11 g. p-C6H4(OH)2, gradually added to 10 g. NaCl

and 50 g. AlCl3 at 130° and heated 5 h. at 140°, give 6.5 g. IX. IX (2 g.), 2 g. Na2-S2O4, and 12 cc. NH4OH (d. 0.88), heated 7 h. at 145-50°, give 90% 1,4-diamino-6-tert-butylanthraquinone, violet with Cu luster, m. 223-4°; **dyes** cellulose acetate rayon a deep magenta shade; the rayon, milled with Tannadol and H2O and dyed at 65-85°, was redder and duller than that dyed with 1,4-diaminoanthraquinone but was slightly more resistant to gas-fume fading. IX (1 g.), 1 g. Na2S2O4, and 6 cc. 33% aqueous MeNH2, 7 h. at 145-50°, give 88% 6-tert-butyl-1-4-bis(methylamino)anthraquinone, dark blue with bronze luster, m. 142°; the dyeings of rayon were greener and duller than those shown by the analogous 1,4-bis-(methylamino) derivative and possessed similar gas-fume fading-fastness

IT **857536-88-0**, Benz[a]anthracene-4,5-dicarboxylic anhydride, 10-tert-butyl-7,12-dihydro-7,12-dioxo-
(preparation of)

RN 857536-88-0 HCAPLUS

CN Benz[a]anthracene-4,5-dicarboxylic anhydride, 10-tert-butyl-7,12-dihydro-7,12-dioxo- (5CI) (CA INDEX NAME)



L48 ANSWER 18 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1944:22726 HCAPLUS

DOCUMENT NUMBER: 38:22726

ORIGINAL REFERENCE NO.: 38:3281h-i,3282a-e

TITLE: 6,7,6',7'-Diphthaloylisooxindigotin, its derivatives and its isomerization. I

AUTHOR(S): Marschalk, Ch.

SOURCE: Bull. soc. chim. (1942), 9, 826-32

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

GI For diagram(s), see printed CA Issue.

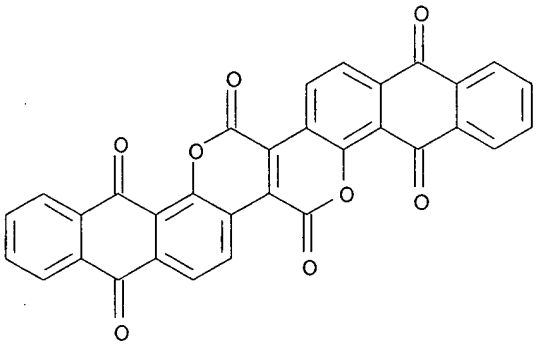
AB 6,7,6',7'-Diphthaloylisooxindigotin (I, R = -CO.C6H4.CO-) was prepared by heating 1-hydroxy-2-anthraquinoneacetic acid (II) with SOCl2 in PhNO2 or xylene at 100°, by heating 6,7-phthaloyl-2-coumaranone (III) in the same manner with S2Cl2 in PhNO2 or xylene at 130° or with FeCl3 or CrO3 in AcOH or with Br in boiling PhNO2, and by condensing 6,7-phthaloyl-2,3-coumarandione 3-p-dimethylaminoanil with 6,7-phthaloyl-2-coumaranone in boiling Ac2O. It forms orange-red rhombohedrons from PhNO2, m. 448° (Au block). S2Cl2 and FeCl3 have no effect on II. It can be assumed with certainty that III is an intermediate product in the formation of I from II. Heating I on the H2O bath with H2SO4 yielded 4,5,4',5'-diphthaloyl-3,4,7,8-dibenzonaphthyrone (IV), yellow crystals from PhNO2, m. 491°. IV was also prepared by heating with H2SO4 in the same manner the acid (V) formed by alkaline hydrolysis of I and IV. Short boiling of V with Ac2O or SOCl2 in PhNO2 gave a yellow-orange **dye.** V was probably a mixture of 2 acids. Expts. on converting V into I always yielded an appreciable amount of IV, indicating IV to be the stabler compound According to Chovin (Bulletin society chim. 8,645(1941); cf. C. A. 37, 2737.1) the isooxindigotin derivs. are

yellow and the naphthyrones orange-red. M.'s exptl. results contradict these conceptions. The color of I agrees with its assigned constitution because the true indigoid condensation product of III and acenaphthenequinone is orange-red just as is bis-(acenaphthene) indigotin, itself.

IT **854389-14-3**, 6,16-Dioxabenzo[b]naphtho[2,3-m]picene-5,7,10,15,17,20-hexone
(preparation of)

RN 854389-14-3 HCAPLUS

CN 6,16-Dioxabenzo[b]naphtho[2,3-m]picene-5,7,10,15,17,20-hexone (4CI) (CA INDEX NAME)



L48 ANSWER 19 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1943:25227 HCAPLUS

DOCUMENT NUMBER: 37:25227

ORIGINAL REFERENCE NO.: 37:4065i,4066a-i,4067a-d

TITLE: Derivatives of 3',2-acenaphthoylbenzoic acid

AUTHOR(S): Peters, A. T.; Rowe, F. M.

SOURCE: Journal of the Society of Dyers and Colourists (1943), 59, 52-4
CODEN: JSDCAA; ISSN: 0037-9859

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

GI For diagram(s), see printed CA Issue.

AB Attempts to prepare condensation products from acenaphthenequinone and phthalic anhydride (I) as intermediates of vat **dyes** failed. But when 50 g. acenaphthene and 52 g. I in 200 cc. C6H6 are stirred with 73 g. AlCl3 at room temperature for 4 hrs., a resinous product is obtained which, after decantation of the C6H6, is treated with 50 cc. concentrated HCl in 200 cc. H2O. Extraction of the residue with 10% Na2CO3 at 60° and acidification of the aqueous extract give 89.7% 3',2-acenaphthoylbenzoic acid (II), m. 199-200°. When 30 g. II is heated with a mixture of 50 g. AlCl3 and 40 g. NaCl at 134-5° within 0.5 hr. and kept at this temperature for 3 hrs., decomposition of the reaction mixture with HCl and extraction of the residue with 10% Na2CO3 leaves 26.6% 3,4-phthaloylacenaphthene (III), m. 194-5° after crystallization from AcOH and EtOH. From the Na2CO3 solution 12 g. unchanged II is recovered. III dissolves in concentrated H2SO4 with an orange color and strong green fluorescence. The mono-p-nitrophenylhydrazone of III m. 255-6° and dissolves in concentrated H2SO4 with a deep reddish brown color without fluorescence. The mono-2,6-dichloro-4-nitrophenylhydrazone m. 248-9° (decomposition). Mild oxidation of III by heating it with Na2Cr2O7 in AcOH for 3 min. gives orange crystals (IV), m. 330-50° (decomposition) after sintering at

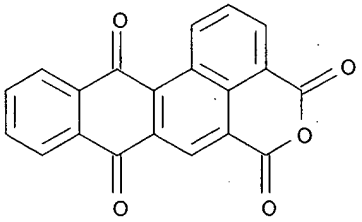
258-60°. IV is either a double compound or a mixture of III and 4,5-phthaloylnaphthalic anhydride (V). When IV is extracted with boiling alkaline Na2S2O4 and the residue crystallized, III is obtained; extraction of IV with pyridine gives V. On more drastic oxidation of III by refluxing it for 20 min. with Na2Cr2O7 in AcOH, 84.4% V is obtained. V is soluble in warm NaOH and on addition of Na2S2O4 gives a magenta color changing to orange-brown. It is soluble in concentrated H2SO4 with a deep orange color. On fusion with m-C6H4(OH)2 V gives a product soluble in dilute NaOH with a strong green fluorescence but no crystalline compound can be isolated. The di-p-nitrophenylhydrazone of V, deep orange-red prisms, m. 287-8° (decomposition); bis (2,6-dichloro-4-nitrophenylhydrazone), orange prisms, m. about 200°. V refluxed with concentrated NH4OH for 3 hrs. gives 84% imide as pale yellow needles, decomposing gradually above 390°. It does not give a hydrazone. With 33% aqueous NH2Me, V gives the N-methylimide, m. 315-16°. When V is fused with p-O2NC6H4NH2, 4,5-phthaloyl-4'-nitronaphthanil, colorless needles, m. about 400°, is obtained. When 1 mol. V and 1.1 mols. o-C6H4(NH2)2 are refluxed in AcOH for 10 min., 86.3% 9'-keto-3',4'-phthaloyl-8'-azaphenalino(7',8',2,3)-ψ-indole (VI), orange needles, m. 380°, is formed. VI is insol. in NaOH but soluble in concentrated H2SO4 with orange-red color. With alkaline Na2S2O4 a deep reddish violet vat is formed which **dyes** cotton golden-yellow. As ring closure proceeds more easily with o-carboxybenzyl derivs., II is reduced in alkaline alc. solution with Zn dust, giving a mixture of 3',2-acenaphthylmethylbenzoic acid (VII) and its lactone (VIII). It is separated by extraction with Na2CO3 solution and the insol. VIII recrystd. from CHCl3 in a yield of 27.5%. VIII m. 201-2° and dissolves in concentrated H2SO4 with a deep reddish violet color which soon changes to olive-green. Acidification of the Na2CO3 extract gives 57.7% VII, m. 211-12°. VII dissolves in concentrated H2SO4 with a yellowish brown color. VII is also obtained in 81.8% yield by refluxing 18 g. II with 500 cc. 2 N NaOH, 33 g. Zn dust and 75 cc. of a solution of equal vols. 2 N NH4OH and 2 N CuSO4 for 50 hrs. (cf. Scholl and Neovius, C. A. 5, 2830). When 10 g. 4-o-carboxybenzoylnaphthalic anhydride (IX), m. 236°, is heated with 12 g. H3BO3 and 30 cc. 20% fuming H2SO4 within 2 hrs. to 150° and kept there for 3 hrs., addition of H2O causes a precipitate which, after extraction with warm Na2CO3 solution and recrystn. from PhNO2, gives 64.2% 3,4-phthaloylnaphthalic anhydride (X), greenish yellow prismatic needles, m. 315°. When IX is heated with concentrated H2SO4 for 5 hrs. at 180-5°, 63.1% X is obtained. X dissolves in cold alkaline Na2S2O4 solution with a deep brownish red color. Mono-p-nitrophenylhydrazone of X m. 350-3° (decomposition); the imide (XI), m. 360° (decomposition) after darkening at 345°, is obtained in 80% yield by heating X with NH4OH. XI dissolves in alkaline Na2S2O4 with a deep bluish green color. XI is also formed in 73.8% yield when 4-o-carboxybenzoyl-1,8-naphthalimide (XII), m. 296-7°, is heated with 20% fuming H2SO4 at 160° for 3 hrs. In an attempt to effect ring closure according to Heidenreich (C. A. 25, 3668) by heating XII with concentrated H2SO4 at 185-230°, X is formed with elimination of NH3. The N-methylimide (XIII), obtained in 81.8% yield by heating X with 33% NH2Me, m. 276-7°. 4-o-Carboxybenzoyl-1,8-naphthal-N-methylimide, formed in 80.4% yield from IX, m. 238-9° and on crystallization from concentrated H2SO4 gives 72% XIII. 3,4-Phthaloyl-4'-nitronaphthalanil, yellow needles, m. above 380°. X and o-C6H4(NH2)2 give 81.7% 9'-keto-4',5'(or 2',3')-phthaloyl-8'-azaphenalino (7',8',2,3)-ψ'-indole (XIV) m. 320-5°. XIV dissolves in concentrated H2SO4 with a brownish yellow color; its olive-green

alkaline Na2S2O4 vat **dyes** cotton orange. IX and o-C6H4(NH2)2 give 91.1% 9'-keto-4'(or 3')-o-carboxybenzoyl-8'-azaphenalino(7',8',2,3)-ψ'-indole (XV), bright yellow needles, m. 285-7°. XV is soluble in alkali. Attempted ring closure with 20% fuming H2SO4 with or without H3BO3 at 150-60° or with AlCl3 at 190° gives only a trace of XIV.

IT **22245-71-2**, Naphthalic anhydride, 3,4-phthaloyl-
(preparation of)

RN 22245-71-2 HCAPLUS

CN 4H,6H-Anthra[3,2,1-de][2]benzopyran-4,6,8,13-tetrone (9CI) (CA INDEX NAME)



L48 ANSWER 20 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1925:21696 HCAPLUS

DOCUMENT NUMBER: 19:21696

ORIGINAL REFERENCE NO.: 19:2822e-g

TITLE: Fungus dyestuffs. II. The **dye** of the blood-red "Hautkopf" (Dermocybe sanguinea Wulf.)

AUTHOR(S): Kogl, Fritz; Postowsky, J. J.

SOURCE: Ann. (1925), 444, 1-7

DOCUMENT TYPE: Journal

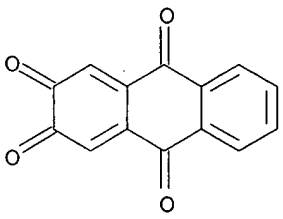
LANGUAGE: Unavailable

AB cf. C. A. 19, 639. The fungus, Dermocybe sanguinea Wolf., was dried, extracted with EtOH, the residue of the extract treated with 3% NH4OH and, after filtering, the **dye** precipitated by acid. Adding 10 vols. H2O to the C5H5N solution ppts. emodin (3% yield of the dry powder); dilute HCl ppts. from the filtrate a new **dye**, dermocybin, C16H12O7 (I), red needles, m. 228-9°, soluble in concentrated H2SO4 with a deep violet, in alkali with a red-violet color; it **dyes** Cr-mordanted wool a violet-red. The spectra are given for concentrated and dilute H2SO4 and 0.1 N NaOH. Tetra-Ac derivative, yellow, m. 182°. Concentrated H2SO4 splits off 1 Me group, giving a pentahydroxy-β-methylanthraquinone, red, m. 289°; the solns. in concentrated H2SO4 and alkali have the same colors as I and **dye** wool the same color. The spectra in concentrated H2SO4 and in Al2(SO4)3 solution are given. Distillation with Zn dust gives β-methylanthracene. I is therefore a pentahydroxymethoxy-β-methylanthraquinone.

IT **5599-74-6**, 2,3,9,10-Anthracenetetrone
(preparation of)

RN 5599-74-6 HCAPLUS

CN 2,3,9,10-Anthracenetetrone (7CI, 8CI, 9CI) (CA INDEX NAME)



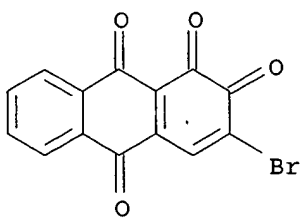
L48 ANSWER 21 OF 21 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1922:10119 HCAPLUS
DOCUMENT NUMBER: 16:10119
ORIGINAL REFERENCE NO.: 16:1767h-i,1768a-i,1769a
TITLE: Action of bromine on quinizarin and alizarin
AUTHOR(S): Dimroth, Otto; Schutze, Ernst; Heinze, Fritz
SOURCE: Ber. (1921), 54B, 3035-50
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
GI For diagram(s), see printed CA Issue.
AB cf. C. A. 14, 3073. This study of the action of Br on simple hydroxyanthraquinones was undertaken to clear up the individual stages of its action on carminic and kermesic acids and thus to determine the structures of these 2 **dyes.** Quinizarin (A) dissolves at 0° in liquid Br and in a few min. the solution solidifies with deposition of red crystals of a very loose Br addition product which at once again loses its Br in the air; on standing several days, it redissolves, Liebermann's hexabromide being slowly formed (Ber. 33, 1658(1900)). A is unchanged by Br water at room temperature,even after shaking for a day, but by Br in KBr is rapidly oxidized to quinizarinquinone (B). B is a much stronger oxidizing agent than benzoquinone or most other quinones, oxidizing leucomalachite green in AcOH instantly to the **dye** and not only HI to I but even HBr to Br; there exists the equilibrium A + Br .dblarw. B + HBr and in order to effect the oxidation A → B, the Br must be present in excess of a certain minimum concentration: this minimum concentration is not attained in Br water
but is in Br-KBr solution, hence the results reported above. With Br water in the presence of liquid Br, A gives a compound (C), isomeric with L.'s dibromoquinizarin (D), which has quinone properties, liberating I from HI and oxidizing leucomalachite green; with Ac2O-H2SO4 it gives the diacetate of D; it liberates 4 atoms I from HI, with formation of A. C must therefore be quinizarin-quinone dibromide; it can also be obtained from B and Br. With SO2, C gives bromoquinizarin (E); apparently SO2 first attacks the quinone O, forming quinizarin dibromide which at once loses HBr and yields E, while HI on the other hand first removes the halogen and then reduces the resulting B to A. C easily loses HBr, very slowly on standing, quickly on boiling with AcOH or H2O; the resulting bromoquinizarinquinone, under the conditions of the HBr cleavage,is at once reduced to E and the HBr oxidized to Br. The complete reaction may therefore be represented by the scheme: A → addition compound → B → C → E. That bromination by the usual methods (e. g., that of Liebermann in boiling AcOH), in which the final product, E, seems to result from a simple substitution reaction, follows the same complicated course is indicated by the following facts: When A is shaken some hrs. at room temperature with Br in AcOH the characteristic needles of B sep. and again disappear; B rapidly and smoothly adds Br in boiling AcOH, a reaction not impeded by the presence of HBr; C in boiling AcOH decomps. into E and if HBr is present the HBr is oxidized to Br and the yield of E

is quant. Alizarin (F) with Br water, with Br-KBr and with Br water in the presence of liquid Br yields in all 3 cases the same compound, red crystals so unstable that their composition could not be determined with certainty but which with SO2give 3-bromoalizarin (G) and about 1 mol. HBr and are doubtless alizarinquinone dibromide; H2O quickly changes them into 3-bromoalizarinquinone (H), reduced by SO2 or HI to G which with Br or Pb(OAc)4 regenerates H. With Br in MeOH, A gives quinizarinquinone methoxybromide (I),C6H4(CO)2 , which liberates 4 atoms of I from HI, with regeneration of A, and is rearranged by Ac2O and a trace of H2SO4 into the diacetate (J) of 3-bromopurpurin 2-methyl ether (K); SO2also reduced I to A. F similarly yields alizarinquinone methoxybromide (L), reduced by HI or SO2 to G and rearranged by Ac2O-H2SO4 into diacetyl-3-bromopurpurin 4-methyl ether (M). Bromination of F in MeOH with gentle warming gives 3,4-dibromoalizarin (N), oxidized by KMnO4 to phthalic acid. Bromination of F in EtOH proceeds as in MeOH. C seps. from CHCl6-ligroin in fine, faintly pink needles, m. 210-5° (decomposition). E crystallizes from AcOH, C5H5N or (CHCl2)2 in red needles, m. 228-30°,forms in dilute KOH a blue solution with absorption bands at 560-70 and 595-610 μμ, in concentrated H2SO4 a light red solution without perceptible fluorescence and the same bands (510-20 and 545-60 μμ) as A; diacetate, light yellow needles from AcOH, m. 216-8°. D, crystals from (CHCl2)2, m. 252-3°, forms in dilute KOH a blue solution with bands at 565-75 and 600-10 μμ, in H2SO4 a violet solution with bands at 515-20 and 550-60 μμ; diacetate, pale yellow needles, m. 270-1°. I,stout yellow crystals from C6H6-ligroin,becomes superficially brown in the light, m. 90°. J, light yellow crystals from C6H6, m. 145°,hydrolyzed by boiling concentrated H2SO4 to K, red needles from PhNO2, C5H5N or AcOH,m. 260°, forms in dilute KOH a red solution with bands at 500-10 and 535-45 μμ, in H2SO4 a red solution with bands at 480-90 and 515-25 μμ, addition of H3BO3 making the solution violet with bands at 500-10 and 535-45 μμ. K is also obtained from purpurin 2-Me ether and Br in AcOH under a reflux. H, yellow needles from CHCl3-ligroin, decomps. on long standing or in the light. L, yellow lancet-shaped needles from CHCl3-petr. ether, decomps. about 200°, sinters and m. around 230°. N,yellow needles from AcOH, m. 251-2°, soluble in alkali with a redder tinge than F, in H2SO4 with K2Cr2O7 color which does not change with H3BO3; diacetate, light yellow needles from AcOH, m. 199-200°. N with Br-KBr gives dark crystals changed by H2O into the egg-yellow 3,4-dibromoalizarinquinone. Alizarinquinone ethoxybromide, yellow tablets from CHCl3-petr. ether, sinters 180°, m. about 205° (decomposition).

IT **18378-49-9**, 1,2,9,10-Anthracenetetrone, 3-bromo-
56018-71-4, 1,2,9,10-Anthracenetetrone, 3,4-dibromo-
(preparation of)

RN 18378-49-9 HCAPLUS

CN 1,2,9,10-Anthracenetetrone, 3-bromo- (8CI) (CA INDEX NAME)



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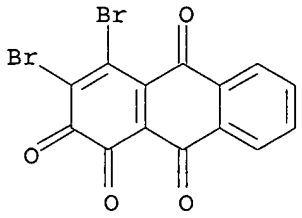
CN 1,2,9,10-Anthracenetetrone, 3,4-dibromo- (9CI) (CA INDEX NAME)



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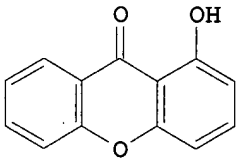
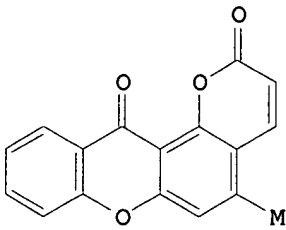
AN 1983:575540 CAPLUS
DN **99:175540**
TI Studies in synthesis of xanthone derivatives: Part III. A new one-step synthesis of xanthones
AU Patolia, Ravji J.; Trivedi, K. N.
CS Fac. Sci., M. S. Univ. Baroda, Baroda, 390 002, India
SO Indian Journal of Chemistry, Section B: Organic Chemistry Including Medicinal Chemistry (1983), 22B(5), 444-7
CODEN: IJSBDB; ISSN: 0376-4699
DT Journal
LA English
OS CASREACT 99:175540
GI



I



II

AB Et salicylate condenses with different phenols in refluxing Ph2O to give various xanthones, e.g., I, in good yields. With resorcinol, hydroquinone, catechol, and 3,4-xylenol, the corresponding Ph salicylate derivs. are also obtained. Condensation with hydroxycoumarins gives pyranoxanthones, e.g., II, which can not be prepared by the Pechmann condensation of hydroxyxanthones. The structures of the intermediates and final products are established by spectral data (IR, H and 13C NMR).